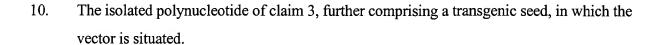
## CLAIMS

## What is claimed is:

- 1. An isolated polynucleotide, comprising:
  - (a) at least one copy of a polynucleotide having the sequence set forth in SEQ ID NO:9; or
  - (b) a polynucleotide which is a variant or fragment of the polynucleotide set forth in SEQ ID NO:9, wherein the variant or fragment has a plant genetic insulator activity.
- 2. The isolated polynucleotide of claim 1, wherein the polynucleotide comprises at least one copy of a polynucleotide having a set forth in the group consisting of SEQ ID NOS:1, 5, 9, 10, 11, 12, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 33, 34, 35 or 36.
- 3. The isolated polynucleotide of claim 1, further comprising a replicable vector; into which the polynucleotide is inserted.
- 4. The isolated polynucleotide of claim 3, wherein the vector is an expression vector.
- 5. The isolated polynucleotide of claim 3, wherein the vector is a plant vector.
- 6. The isolated polynucleotide of claim 3, further comprising a host cell, in which the vector is situated.
- 7. The isolated polynucleotide of claim 3, wherein the host cell is a plant cell.
- 8. The isolated polynucleotide of claim 3, further comprising a transgenic plant, in which the vector is situated.
- 9. The isolated polynucleotide of claim 8, wherein the plant is *Arabidopsis* or tobacco.



- 11. A recombinant polynucleotide, comprising:
  - (a) at least one copy of a polynucleotide having the sequence set forth in SEQ ID NO:9; or
  - (b) a polynucleotide which is a variant or fragment of the polynucleotide set forth in SEQ ID NO:9, wherein said variant or fragment has a plant genetic insulator activity.
- 12. A method for expressing a polypeptide in a plant cell, comprising the steps of:
  - (a) providing a vector comprising:
    - (i) at least one copy of either
      - (A) a polynucleotide having the sequence set forth in SEQ ID NO:9; or
      - (B) a polynucleotide which is a variant or fragment of the polynucleotide set forth in SEQ ID NO:9, wherein the variant or fragment has a plant genetic insulator activity; and
    - (ii) a structural polynucleotide coding for a polypeptide;
  - (b) inserting the vector into a plant cell, wherein the genetic insulator polynucleotide is recombined into the genomic DNA of the plant; and
  - (c) allowing the plant cell to express the polypeptide.
- 13. The method according to claim 12, wherein the genetic insulator polynucleotide is located immediately upstream of the polynucleotide encoding the polypeptide.
- 14. The method according to claim 13, wherein the plant is *Arabidopsis* or tobacco.

- 15. A method of making a recombinant plant cell having reduced variability of expression of a transgenic polypeptide therein, said method comprising:
  - (a) providing a plant cell capable of regeneration;
  - (b) transfecting said plant cell with a polynucleotide construct comprising
    - (i) a genetic insulator polypeptide, comprising:
      - (A) at least one copy of a polynucleotide having the sequence set forth in SEQ ID NO:9; or
      - (B) a polynucleotide which is a variant or fragment of the polynucleotide set forth in SEQ ID NO:9, wherein the variant or fragment has a plant genetic insulator activity;
    - (ii) a transcription initiation region; and
    - (iii) a structural polynucleotide encoding a polynucleotide; wherein the genetic insulator polypeptide, the transcription initiation region and the structural polynucleotide are operatively associated;

wherein the polynucleotide expression has a reduced variability as compared with a plant cell transfected with a polynucleotide construct that does not contain the genetic insulator polypeptide.

16. The method of claim 15, wherein expression of the transgenic polypeptide occurs in more of a plurality of the plant cells as compared to a plurality of the plant cells transfected with a polynucleotide construct that does not contain the genetic insulator polypeptide.

17. A method for insulating the expression of a transgenic polypeptide from *cis*-acting regulatory elements in the plant chromosome into which the polynucleotide coding for the expressed polypeptide has integrated, comprising:

transfecting a plant cell with a polynucleotide construct comprising

- (a) a genetic insulator polypeptide, comprising:
  - (i) at least one copy of a polynucleotide having the sequence set forth in SEQ ID NO:9; or
  - (ii) a polynucleotide which is a variant or fragment of the polynucleotide set forth in SEQ ID NO:9, wherein the variant or fragment has a plant genetic insulator activity;
- (b) a transcription initiation region; and
- (c) a structural polynucleotide encoding a polynucleotide; wherein the genetic insulator polypeptide, the transcription initiation region and the structural polynucleotide are operatively associated; wherein the transfected polynucleotide construct integrates into a chromosome of the plant cell; and wherein the expression of the polypeptide from the integrated polynucleotide is

insulated from cis-acting regulatory elements in the plant chromosome into which

the polynucleotide coding for the expressed polypeptide has integrated.